#3

SEQUENCE LISTING

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Kwon, Young Do
Kim, Hyun-Won
Ryu, Eun-Hyun
Hwang, Moon-Sun

<120> ZINC FINGER DOMAINS AND METHODS OF IDENTIFYING SAME

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<140> 09/785,632
<141> 2001-02-16

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Lys Glu Gly Gly Ser Thr Phe Arg Thr Gly Gln Glu Arg Pro Asp Pro
 1 5 10 15

cgg gaa ttc aga tct act agt gcg gcc gct aag taagtaagac gtcgagctcg 101
Arg Glu Phe Arg Ser Thr Ser Ala Ala Ala Lys
 20 25

ccatcgcggt ggaagcttt 120

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<213> Artificial Sequence

<220>
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 1 5 10 15
Arg Glu Phe Arg Ser Thr Ser Ala Ala Ala Lys
 20 25

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 Glu Arg Pro Tyr Ala Cys Pro Val Glu
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tcc tgc gat cgc cgc ttt tct cgc tcg gat gag ctt acc cgc cat atc 99
Ser Cys Asp Arg Arg Phe Ser Arg Ser Asp Glu Leu Thr Arg His Ile
 10 15 20 25

cgc atc cac act ggc cag aag ccc ttc cag tgt cga atc tgc atg cgt 147
Arg Ile His Thr Gly Gln Lys Pro Phe Gln Cys Arg Ile Cys Met Arg
 30 35 40

aac ttc agt cgt agt gac cac ctt acc acc cac atc cgg acc cac acc 195
Asn Phe Ser Arg Ser Asp His Leu Thr Thr His Ile Arg Thr His Thr
 45 50 55

ggc gag aag cct ttt gcc tgt gac att tgt ggg agg aag ttt gcc agg 243

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Gly Glu Lys Pro Phe Ala Cys Asp Ile Cys Gly Arg Lys Phe Ala Arg
          60                  65                  70

agt gat gaa cgc aag agg cat acc aaa atc cat tta aga cag aag gat      291
Ser Asp Glu Arg Lys Arg His Thr Lys Ile His Leu Arg Gln Lys Asp
     75                  80                  85

ccgcgggaat cc                                                        303

<210> 21
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            20                  25                  30
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        35                  40                  45
Leu Thr Thr His Ile Arg Thr His Thr Gly Glu Lys Pro Phe Ala Cys
    50                  55                  60
Asp Ile Cys Gly Arg Lys Phe Ala Arg Ser Asp Glu Arg Lys Arg His
65                  70                  75                  80
Thr Lys Ile His Leu Arg Gln Lys Asp
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<213> Homo sapiens

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 1               5                  10                  15

tgt ccc tca aac ctt cga agg cat gga agg act cac acc ggc gag aaa       96
Cys Pro Ser Asn Leu Arg Arg His Gly Arg Thr His Thr Gly Glu Lys
            20                  25                  30

ccg cgg                                                             102
Pro Arg


<210> 23
<211> 34
<212> PRT
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<213> Homo sapiens

<400> 23
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 1   5   10   15
Cys Pro Ser Asn Leu Arg Arg His Gly Arg Thr His Thr Gly Glu Lys
            20   25   30
Pro Arg

<210> 24
<211> 102
<212> DNA
<213> Homo sapiens

<220>
<221> CDS
<222> (1)...(102)

<400> 24
acc ggg gag aag cca tac aag tgt aag gag tgt ggg aaa gcc ttc aac 48
Thr Gly Glu Lys Pro Tyr Lys Cys Lys Glu Cys Gly Lys Ala Phe Asn
 1   5   10   15

cac agc tcc aac ttc aat aaa cac cac aga atc cac acc ggc gaa aag 96
His Ser Ser Asn Phe Asn Lys His His Arg Ile His Thr Gly Glu Lys
            20   25   30

ccg cgg   102
Pro Arg

<210> 25
<211> 34
<212> PRT
<213> Homo sapiens

<400> 25
Thr Gly Glu Lys Pro Tyr Lys Cys Lys Glu Cys Gly Lys Ala Phe Asn
 1   5   10   15
His Ser Ser Asn Phe Asn Lys His His Arg Ile His Thr Gly Glu Lys
            20   25   30
Pro Arg

<210> 26
<211> 102
<212> DNA
<213> Homo sapiens

<220>
<221> CDS
<222> (1)...(102)

<400> 26
acc ggg gag agg cca ttt gaa tgt aag gaa tgt ggg aaa gcc ttt agt 48

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Thr Gly Glu Arg Pro Phe Glu Cys Lys Glu Cys Gly Lys Ala Phe Ser
 1               5                  10                  15

agt ggt tca aac ttc act cga cat cag aga att cac acc ggt gaa aag        96
Ser Gly Ser Asn Phe Thr Arg His Gln Arg Ile His Thr Gly Glu Lys
            20                  25                  30

ccg cgg                                                               102
Pro Arg
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<210> 27
<211> 34
<212> PRT
<213> Homo sapiens

<400> 27
Thr Gly Glu Arg Pro Phe Glu Cys Lys Glu Cys Gly Lys Ala Phe Ser
 1   5   10   15
Ser Gly Ser Asn Phe Thr Arg His Gln Arg Ile His Thr Gly Glu Lys
            20   25   30
Pro Arg

<210> 28
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<400> 28
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acc ggg cag aag cca tac gta tgc gat gta gag gga tgt acg tgg aaa        48
Thr Gly Gln Lys Pro Tyr Val Cys Asp Val Glu Gly Cys Thr Trp Lys
 1               5                  10                  15

ttt gcc cgc tca gat gag ctc aac aga cac aag aaa agg cac acc ggc        96
Phe Ala Arg Ser Asp Glu Leu Asn Arg His Lys Lys Arg His Thr Gly
            20                  25                  30

gaa aga ccg cgg                                                       108
Glu Arg Pro Arg
        35
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<210> 29
<211> 36
<212> PRT
<213> Homo sapiens

<400> 29
Thr Gly Gln Lys Pro Tyr Val Cys Asp Val Glu Gly Cys Thr Trp Lys
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Phe Ala Arg Ser Asp Glu Leu Asn Arg His Lys Lys Arg His Thr Gly

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            20                  25                  30
Glu Arg Pro Arg
        35

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Thr Gly Glu Arg Pro Tyr Glu Cys Asn Glu Cys Gly Lys Ala Phe Ala
 1               5                  10                  15

caa aat tca act ctc aga gta cac cag aga att cac acc ggc gaa aag       96
Gln Asn Ser Thr Leu Arg Val His Gln Arg Ile His Thr Gly Glu Lys
            20                  25                  30

ccg cgg                                                              102
Pro Arg


<210> 31
<211> 34
<212> PRT
<213> Homo sapiens

<400> 31
Thr Gly Glu Arg Pro Tyr Glu Cys Asn Glu Cys Gly Lys Ala Phe Ala
 1               5                  10                  15
Gln Asn Ser Thr Leu Arg Val His Gln Arg Ile His Thr Gly Glu Lys
            20                  25                  30
Pro Arg


<210> 32
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<213> Homo sapiens

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<222> (1)...(102)

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Thr Gly Glu Arg Pro Tyr Glu Cys Asn Tyr Cys Gly Lys Thr Phe Ser
 1               5                  10                  15

gtg agc tca acc ctt att aga cat cag aga atc cac acc ggc gag aga       96
Val Ser Ser Thr Leu Ile Arg His Gln Arg Ile His Thr Gly Glu Arg
            20                  25                  30
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ccg cgg 102
Pro Arg

<210> 33
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<400> 33
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1 5 10 15
Val Ser Ser Thr Leu Ile Arg His Gln Arg Ile His Thr Gly Glu Arg
20 25 30
Pro Arg

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Tyr Gln Cys Asn Ile Cys Gly Lys Cys Phe Ser Cys Asn Ser Asn Leu
1 5 10 15

cac agg cac cag aga acg cac 69
His Arg His Gln Arg Thr His
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<210> 35
<211> 23
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<400> 35
Tyr Gln Cys Asn Ile Cys Gly Lys Cys Phe Ser Cys Asn Ser Asn Leu
1 5 10 15
His Arg His Gln Arg Thr His
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Tyr Ala Cys His Leu Cys Gly Lys Ala Phe Thr Gln Ser Ser His Leu
1 5 10 15

aga aga cat gag aaa act cac 69
Arg Arg His Glu Lys Thr His
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<210> 37
<211> 23
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<213> Homo sapiens

<400> 37
Tyr Ala Cys His Leu Cys Gly Lys Ala Phe Thr Gln Ser Ser His Leu
1 5 10 15
Arg Arg His Glu Lys Thr His
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<210> 38
<211> 69
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Tyr Lys Cys Gly Gln Cys Gly Lys Phe Tyr Ser Gln Val Ser His Leu
1 5 10 15

acc cgc cac cag aaa atc cac 69
Thr Arg His Gln Lys Ile His
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<210> 39
<211> 23
<212> PRT
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<400> 39
Tyr Lys Cys Gly Gln Cys Gly Lys Phe Tyr Ser Gln Val Ser His Leu
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Thr Arg His Gln Lys Ile His
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<210> 40
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Tyr Ala Cys His Leu Cys Gly Lys Ala Phe Thr Gln Cys Ser His Leu
1 5 10 15

aga aga cat gag aaa act cac 69
Arg Arg His Glu Lys Thr His
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<210> 41
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1 5 10 15
Arg Arg His Glu Lys Thr His
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<211> 69
<212> DNA
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<222> (1)...(69)

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Tyr Ala Cys His Leu Cys Ala Lys Ala Phe Ile Gln Cys Ser His Leu
1 5 10 15

aga aga cat gag aaa act cac 69
Arg Arg His Glu Lys Thr His
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<210> 43
<211> 23
<212> PRT
<213> Homo sapiens

<400> 43
Tyr Ala Cys His Leu Cys Ala Lys Ala Phe Ile Gln Cys Ser His Leu
1 5 10 15
Arg Arg His Glu Lys Thr His
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<210> 44
<211> 69

<212> DNA
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1 5 10 15

gtc aga cac aag agg aca cat 69
Val Arg His Lys Arg Thr His
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1 5 10 15
Val Arg His Lys Arg Thr His
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<212> DNA
<213> Homo sapiens

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1 5 10 15

atc aga cac cag aga act cac 69
Ile Arg His Gln Arg Thr His
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<210> 47
<211> 23
<212> PRT
<213> Homo sapiens

<400> 47
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1 5 10 15
Ile Arg His Gln Arg Thr His
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Ile Arg His Gln Arg Thr His
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<210> 49
<211> 23
<212> PRT
<213> Homo sapiens

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Ile Arg His Gln Arg Thr His
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1 5 10 15

att gta cat cag aga aca cac 69
Ile Val His Gln Arg Thr His
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<211> 23
<212> PRT
<213> Homo sapiens

<400> 51
Tyr Glu Cys Asn Thr Cys Arg Lys Thr Phe Ser Gln Lys Ser Asn Leu

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Ile Val His Gln Arg Thr His
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Tyr Val Cys Ser Lys Cys Gly Lys Ala Phe Thr Gln Ser Ser Asn Leu
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act gta cat caa aaa atc cac                                         69
Thr Val His Gln Lys Ile His
            20


<210> 53
<211> 23
<212> PRT
<213> Homo sapiens

<400> 53
Tyr Val Cys Ser Lys Cys Gly Lys Ala Phe Thr Gln Ser Ser Asn Leu
 1               5                  10                  15
Thr Val His Gln Lys Ile His
            20

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Ile Val His Lys Arg Ile His
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<212> PRT
<213> Homo sapiens
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<400> 55
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Ile Val His Lys Arg Ile His
            20

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<221> CDS
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Tyr Glu Cys Asp Val Cys Gly Lys Thr Phe Thr Gln Lys Ser Asn Leu
 1   5   10   15

ggt gta cat cag aga act cat   69
Gly Val His Gln Arg Thr His
            20

<210> 57
<211> 23
<212> PRT
<213> Homo sapiens

<400> 57
Tyr Glu Cys Asp Val Cys Gly Lys Thr Phe Thr Gln Lys Ser Asn Leu
 1   5   10   15
Gly Val His Gln Arg Thr His
            20

<210> 58
<211> 69
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Tyr Lys Cys Pro Asp Cys Gly Lys Ser Phe Ser Gln Ser Ser Ser Leu
 1   5   10   15

att cgc cac cag cgg aca cac   69
Ile Arg His Gln Arg Thr His
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<211> 23
<212> PRT
<213> Homo sapiens

<400> 59
Tyr Lys Cys Pro Asp Cys Gly Lys Ser Phe Ser Gln Ser Ser Ser Leu
 1   5   10   15
Ile Arg His Gln Arg Thr His
            20

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<211> 69
<212> DNA
<213> Homo sapiens

<220>
<221> CDS
<222> (1)...(69)

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Tyr Glu Cys Gln Asp Cys Gly Arg Ala Phe Asn Gln Asn Ser Ser Leu
 1   5   10   15

ggg cgg cac aag agg aca cac   69
Gly Arg His Lys Arg Thr His
            20

<210> 61
<211> 23
<212> PRT
<213> Homo sapiens

<400> 61
Tyr Glu Cys Gln Asp Cys Gly Arg Ala Phe Asn Gln Asn Ser Ser Leu
 1   5   10   15
Gly Arg His Lys Arg Thr His
            20

<210> 62
<211> 69
<212> DNA
<213> Homo sapiens

<220>
<221> CDS
<222> (1)...(69)

<400> 62
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Tyr Lys Cys Glu Glu Cys Gly Lys Ala Phe Asn Gln Ser Ser Thr Leu
 1   5   10   15

act aga cat aag ata gtt cat   69
Thr Arg His Lys Ile Val His
            20

<210> 63
<211> 23
<212> PRT
<213> Homo sapiens

<400> 63
Tyr Lys Cys Glu Glu Cys Gly Lys Ala Phe Asn Gln Ser Ser Thr Leu
 1   5   10   15
Thr Arg His Lys Ile Val His
            20

<210> 64
<211> 69
<212> DNA
<213> Homo sapiens

<220>
<221> CDS
<222> (1)...(69)

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Tyr Lys Cys Met Glu Cys Gly Lys Ala Phe Asn Arg Arg Ser His Leu
 1   5   10   15

aca cgg cac cag cgg att cac   69
Thr Arg His Gln Arg Ile His
            20

<210> 65
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<212> PRT
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<400> 65
Tyr Lys Cys Met Glu Cys Gly Lys Ala Phe Asn Arg Arg Ser His Leu
 1   5   10   15
Thr Arg His Gln Arg Ile His
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<210> 66
<211> 69
<212> DNA
<213> Homo sapiens

<220>
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<222> (1)...(69)

<400> 66
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Tyr Thr Cys Lys Gln Cys Gly Lys Ala Phe Ser Val Ser Ser Ser Leu
 1   5   10   15

cga aga cat gaa acc act cac 69
Arg Arg His Glu Thr Thr His
20

<210> 67
<211> 23
<212> PRT
<213> Homo sapiens

<400> 67
Tyr Thr Cys Lys Gln Cys Gly Lys Ala Phe Ser Val Ser Ser Ser Leu
1 5 10 15
Arg Arg His Glu Thr Thr His
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<210> 68
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<213> Artificial Sequence

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<223> purified polypeptide

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<222> 1, 13
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<221> VARIANT
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<223> Xaa = hydrophobic residue

<400> 68
Xaa Xaa Cys Xaa Xaa Xaa Xaa Xaa Cys Xaa Xaa Xaa Xaa Xaa Cys Xaa
1 5 10 15
Ser Asn Xaa Xaa Arg His Xaa Xaa Xaa Xaa Xaa His
20 25

<210> 69
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<220>
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<223> Xaa = any amino acid

<221> VARIANT
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<221> VARIANT
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<223> Xaa = hydrophobic residue

<400> 69
Xaa Xaa Cys Xaa Xaa Xaa Xaa Xaa Cys Xaa Xaa Xaa Xaa Xaa His Xaa
 1   5   10   15
Ser Asn Xaa Xaa Lys His Xaa Xaa Xaa Xaa Xaa His
            20   25

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<221> VARIANT
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<223> Xaa = Phe or Tyr

<221> VARIANT
<222> 19
<223> Xaa = hydrophobic residue

<400> 70
Xaa Xaa Cys Xaa Xaa Xaa Xaa Xaa Cys Xaa Xaa Xaa Xaa Xaa Ser Xaa
 1   5   10   15
Ser Asn Xaa Xaa Arg His Xaa Xaa Xaa Xaa Xaa His
            20   25

<210> 71
<211> 28
<212> PRT
<213> Artificial Sequence

<220>
<223> purified polypeptide

<221> VARIANT
<222> (1)...(28)
<223> Xaa = any amino acid

<221> VARIANT
<222> 1, 13
<223> Xaa = Phe or Tyr

<221> VARIANT
<222> 19
<223> Xaa = hydrophobic residue

<400> 71
Xaa Xaa Cys Xaa Xaa Xaa Xaa Xaa Cys Xaa Xaa Xaa Xaa Xaa Gln Xaa
 1   5   10   15
Ser Thr Xaa Xaa Val His Xaa Xaa Xaa Xaa Xaa His
            20   25

<210> 72
<211> 28
<212> PRT
<213> Artificial Sequence

<220>
<223> purified polypeptide

<221> VARIANT
<222> (1)...(28)
<223> Xaa = any amino acid

<221> VARIANT
<222> 1, 13
<223> Xaa = Phe or Tyr

<221> VARIANT
<222> 18
<223> Xaa = Ser or Thr

<221> VARIANT
<222> 19
<223> Xaa = hydrophobic residue

<400> 72
Xaa Xaa Cys Xaa Xaa Xaa Xaa Xaa Cys Xaa Xaa Xaa Xaa Xaa Val Xaa
 1   5   10   15
Ser Xaa Xaa Xaa Arg His Xaa Xaa Xaa Xaa Xaa His
            20   25

<210> 73
<211> 28
<212> PRT
<213> Artificial Sequence

<220>
<223> purified polypeptide

<221> VARIANT
<222> (1)...(28)
<223> Xaa = any amino acid

<221> VARIANT
<222> 1, 13
<223> Xaa = Phe or Tyr

<221> VARIANT
<222> 19
<223> Xaa = hydrophobic residue

<400> 73

Xaa Xaa Cys Xaa Xaa Xaa Xaa Xaa Cys Xaa Xaa Xaa Xaa Xaa Gln Xaa
1 5 10 15
Ser His Xaa Xaa Arg His Xaa Xaa Xaa Xaa Xaa His
20 25

<210> 74
<211> 28
<212> PRT
<213> Artificial Sequence

<220>
<223> purified polypeptide

<221> VARIANT
<222> (1)...(28)
<223> Xaa = any amino acid

<221> VARIANT
<222> 1, 13
<223> Xaa = Phe or Tyr

<221> VARIANT
<222> 19
<223> Xaa = hydrophobic residue

<400> 74
Xaa Xaa Cys Xaa Xaa Xaa Xaa Xaa Cys Xaa Xaa Xaa Xaa Xaa Gln Xaa
1 5 10 15
Ser Asn Xaa Xaa Val His Xaa Xaa Xaa Xaa Xaa His
20 25

<210> 75
<211> 28
<212> PRT
<213> Artificial Sequence

<220>
<223> purified polypeptide

<221> VARIANT
<222> (1)...(28)
<223> Xaa = any amino acid

<221> VARIANT
<222> 1, 13
<223> Xaa = Phe or Tyr

<221> VARIANT
<222> 18
<223> Xaa = Ser or Thr

<221> VARIANT
<222> 19
<223> Xaa = hydrophobic residue

<400> 75
Xaa Xaa Cys Xaa Xaa Xaa Xaa Xaa Cys Xaa Xaa Xaa Xaa Xaa Gln Xaa

```
 1               5                   10                  15
Ser Xaa Xaa Xaa Arg His Xaa Xaa Xaa Xaa Xaa His
            20                  25

<210> 76
<211> 28
<212> PRT
<213> Artificial Sequence

<220>
<223> coordinating residue

<221> VARIANT
<222> 1, 13
<223> Xaa = Phe or Tyr

<221> VARIANT
<222> (1)...(28)
<223> Xaa = any amino acid

<221> VARIANT
<222> 19
<223> Xaa = hydrophobic residue

<400> 76
Xaa Xaa Cys Xaa Xaa Xaa Xaa Xaa Cys Xaa Xaa Xaa Xaa Xaa Xaa Xaa
 1               5                   10                  15
Xaa Xaa Xaa Xaa Xaa His Xaa Xaa Xaa Xaa Xaa His
            20                  25

<210> 77
<211> 24
<212> PRT
<213> Artificial Sequence

<220>
<223> polypeptide motif

<221> VARIANT
<222> 1
<223> Xaa = Leu, Ile, Val, Met, Phe, Tyr, or Gly

<221> VARIANT
<222> 2
<223> Xaa = Ala, Ser, Leu, Val, or Arg

<221> VARIANT
<222> 3-4, 6, 8-11, 17, 19-23
<223> Xaa = any amino acid

<221> VARIANT
<222> 5
<223> Xaa = Leu, Ile, Val, Met, Ser, Thr, Ala, Cys, or
      Asn

<221> VARIANT
<222> 7
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<223> Xaa = Leu, Ile, Val, or Met

<221> VARIANT
<222> (12)...(12)
<223> Xaa = Leu, Ile, or Val

<221> VARIANT
<222> (13)...(13)
<223> Xaa = Arg, Lys, Asn, Gln, Glu, Ser, Thr, Ala, Ile,
or Tyr

<221> VARIANT
<222> (14)...(14)
<223> Xaa = Leu, Ile, Val, Phe, Ser, Thr, Asn, Lys, or
His

<221> VARIANT
<222> (16)...(16)
<223> Xaa = Phe, Tyr, Val, or Cys

<221> VARIANT
<222> (18)...(18)
<223> Xaa = Asn, Asp, Gln, Thr, Ala, or His

<221> VARIANT
<222> (24)...(24)
<223> Xaa = Arg, Lys, Asn, Ala, Ile, Met, or Trp

<400> 77
Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Trp Xaa
1 5 10 15
Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa
20

<210> 78
<211> 6
<212> PRT
<213> Eukaryote

<220>
<221> VARIANT
<222> 3
<223> Xaa = Glu or Gln

<221> VARIANT
<222> 4
<223> Xaa = Lys or Arg

<221> VARIANT
<222> 6
<223> Xaa = Tyr or Phe

<400> 78
Thr Gly Xaa Xaa Pro Xaa
1 5

<210> 79

<211> 29
<212> DNA
<213> Artificial Sequence

<220>
<223> synthetic oligonucleotide

<400> 79
tgcctgcagc atttgtggga ggaagtttg 29

<210> 80
<211> 30
<212> DNA
<213> Artificial Sequence

<220>
<223> synthetic oligonucleotide

<400> 80
atgctgcagg cttaaggctt ctcgccggtg 30

<210> 81
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<223> primer for PCR

<221> misc_feature
<222> (0)...(0)
<223> n = A, T, G, or C; y = T or C; s = G or C; r = G
or A

<400> 81
gcgtccggac ncayacnggn sara 24

<210> 82
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<223> primer for PCR

<221> misc_feature
<222> (0)...(0)
<223> n = A, T, G, or C; b = G, C, or T; r = G or A; w =
A or T; y = T or C

<400> 82
cggaattcan nbrwanggyy tytc 24

<210> 83
<211> 7
<212> PRT
<213> Artificial Sequence

<220>
<223> amino acid motif

<221> VARIANT
<222> 4
<223> Xaa = Glu or Gln

<221> VARIANT
<222> 5
<223> Xaa = Lys or Arg

<221> VARIANT
<222> 3
<223> Xaa = Tyr or Phe

<400> 83
His Thr Gly Xaa Xaa Pro Xaa
 1   5

<210> 84
<211> 54
<212> DNA
<213> Artificial Sequence

<220>
<223> synthetic oligonucleotide

<400> 84
gggcccgggg agaagcctta cgcatgtcca gtcgaatctt gtgatagaag attc 54

<210> 85
<211> 75
<212> DNA
<213> Artificial Sequence

<220>
<223> synthetic oligonucleotide

<221> misc_feature
<222> (0)...(0)
<223> n = A, T, G, or C; b = G, C, or T; s = G or C

<400> 85
ctccccgcgg ttcgccggtg tggattctga tatgsnbsnb aagsnbsnbs nbsnbtgaga 60
atcttctatc acaag 75

<210> 86
<211> 23
<212> DNA
<213> Artificial Sequence

<220>
<223> synthetic oligonucleotide

<400> 86
ctagacccgg gaattcgtcg acg 23

<210> 87
<211> 23
<212> DNA
<213> Artificial Sequence

<220>
<223> synthetic oligonucleotide

<400> 87
gatccgtcga cgaattcccg ggt 23

<210> 88
<211> 38
<212> DNA
<213> syArtificial Sequence

<220>
<223> synthetic oligonucleotide

<221> misc_feature
<222> (0)...(0)
<223> n = A, T, G, or C

<400> 88
ccggtnnntg ggcgtacnnn tgggcgtcan nntgggcg 38

<210> 89
<211> 38
<212> DNA
<213> Artificial Sequence

<220>
<223> synthetic oligonucleotide

<221> misc_feature
<222> (0)...(0)
<223> n = A, T, G, or C

<400> 89
tcgacgccca nnntgacgcc cannngtacg cccannna 38

<210> 90
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<223> synthetic probe for gel shift assay

<400> 90
ccgggtcgcg cgtgggcggt accg 24

<210> 91
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<223> synthetic probe for gel shift assay

<400> 91
tcgacggtac cgcccacgcg cgac 24

<210> 92
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<223> synthetic probe for gel shift assay

<400> 92
ccgggtcgcg agcgggcggt accg 24

<210> 93
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<223> synthetic probe for gel shift assay

<400> 93
tcgacggtac cgcccgctcg cgac 24

<210> 94
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<223> synthetic probe for gel shift assay

<400> 94
ccgggtcgtg cttgggcggt accg 24

<210> 95
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<223> synthetic probe for gel shift assay

<400> 95
tcgacggtac cgcccaagca cgac 24

<210> 96
<211> 24
<212> DNA
<213> Artificial Sequence

<220>

<223> synthetic probe for gel shift assay

<400> 96
ccgggtcggg actgggcggt accg 24

<210> 97
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<223> synthetic probe for gel shift assay

<400> 97
tcgacggtac cgcccagtcc cgac 24

<210> 98
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<223> synthetic probe for gel shift assay

<400> 98
ccgggtcggg agtgggcggt accg 24

<210> 99
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<223> synthetic probe for gel shift assay

<400> 99
tcgacggtac cgcccactcc cgac 24

<210> 100
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<223> synthetic probe for gel shift assay

<400> 100
ccgggtcgga catgggcggt accg 24

<210> 101
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<223> synthetic probe for gel shift assay

<400> 101
tcgacggtac cgcccatgtc cgac 24

<210> 102
<211> 69
<212> DNA
<213> Homo sapiens

<220>
<221> CDS
<222> (1)...(69)

<400> 102
tat aag tgt aag gaa tgt ggg cag gcc ttt aga cag cgt gca cat ctt 48
Tyr Lys Cys Lys Glu Cys Gly Gln Ala Phe Arg Gln Arg Ala His Leu
1 5 10 15

att cga cat cac aaa ctt cac 69
Ile Arg His His Lys Leu His
20

<210> 103
<211> 23
<212> PRT
<213> Homo sapiens

<400> 103
Tyr Lys Cys Lys Glu Cys Gly Gln Ala Phe Arg Gln Arg Ala His Leu
1 5 10 15
Ile Arg His His Lys Leu His
20

<210> 104
<211> 69
<212> DNA
<213> Homo sapiens

<220>
<221> CDS
<222> (1)...(69)

<400> 104
tat aag tgt cat caa tgt ggg aaa gcc ttt att caa tcc ttt aac ctt 48
Tyr Lys Cys His Gln Cys Gly Lys Ala Phe Ile Gln Ser Phe Asn Leu
1 5 10 15

cga aga cat gag aga act cac 69
Arg Arg His Glu Arg Thr His
20

<210> 105
<211> 23
<212> PRT
<213> Homo sapiens

<400> 105
Tyr Lys Cys His Gln Cys Gly Lys Ala Phe Ile Gln Ser Phe Asn Leu
 1   5   10   15
Arg Arg His Glu Arg Thr His
            20

<210> 106
<211> 69
<212> DNA
<213> Homo sapiens

<220>
<221> CDS
<222> (1)...(69)

<400> 106
ttc cag tgt aat cag tgt ggg gca tct ttt act cag aaa ggt aac ctc 48
Phe Gln Cys Asn Gln Cys Gly Ala Ser Phe Thr Gln Lys Gly Asn Leu
 1   5   10   15

ctc cgc cac att aaa ctg cac 69
Leu Arg His Ile Lys Leu His
            20

<210> 107
<211> 23
<212> PRT
<213> Homo sapiens

<400> 107
Phe Gln Cys Asn Gln Cys Gly Ala Ser Phe Thr Gln Lys Gly Asn Leu
 1   5   10   15
Leu Arg His Ile Lys Leu His
            20

<210> 108
<211> 72
<212> DNA
<213> Artificial Sequence

<220>
<223> primer for PCR

<221> misc_feature
<222> (0)...(0)
<223> n =A, T, G, or C

<400> 108
acccacactg gccagaaacc cnnnnnnnnn nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn 60
nnnnnnnnnn nn 72

<210> 109
<211> 66
<212> DNA
<213> Artificial Sequence

<220>
<223> primer for PCR

<221> misc_feature
<222> (0)...(0)
<223> n = A, T, G, or C

<400> 109
gatctgaatt cattcaccgg tnnnnnnnnn nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn 60
nnnnnn 66

<210> 110
<211> 69
<212> DNA
<213> Homo sapiens

<220>
<221> CDS
<222> (1)...(69)

<400> 110
tac aaa tgt gaa gaa tgt ggc aaa gcc ttt agg cag tcc tca cac ctt 48
Tyr Lys Cys Glu Glu Cys Gly Lys Ala Phe Arg Gln Ser Ser His Leu
 1 5 10 15

act aca cat aag ata att cat 69
Thr Thr His Lys Ile Ile His
 20

<210> 111
<211> 23
<212> PRT
<213> Homo sapiens

<400> 111
Tyr Lys Cys Glu Glu Cys Gly Lys Ala Phe Arg Gln Ser Ser His Leu
 1 5 10 15
Thr Thr His Lys Ile Ile His
 20

<210> 112
<211> 69
<212> DNA
<213> Homo sapiens

<220>
<221> CDS
<222> (1)...(69)

<400> 112
tat gag tgt gat cac tgt gga aaa tcc ttt agc cag agc tct cat ctg 48
Tyr Glu Cys Asp His Cys Gly Lys Ser Phe Ser Gln Ser Ser His Leu
 1 5 10 15

aat gtg cac aaa aga act cac 69
Asn Val His Lys Arg Thr His

20

<210> 113
<211> 23
<212> PRT
<213> Homo sapiens

<400> 113
Tyr Glu Cys Asp His Cys Gly Lys Ser Phe Ser Gln Ser Ser His Leu
 1   5   10   15
Asn Val His Lys Arg Thr His
            20

<210> 114
<211> 69
<212> DNA
<213> Homo sapiens

<220>
<221> CDS
<222> (1)...(69)

<400> 114
tac atg tgc agt gag tgt ggg cga ggc ttc agc cag aag tca aac ctc 48
Tyr Met Cys Ser Glu Cys Gly Arg Gly Phe Ser Gln Lys Ser Asn Leu
 1   5   10   15

atc ata cac cag agg aca cac   69
Ile Ile His Gln Arg Thr His
            20

<210> 115
<211> 23
<212> PRT
<213> Homo sapiens

<400> 115
Tyr Met Cys Ser Glu Cys Gly Arg Gly Phe Ser Gln Lys Ser Asn Leu
 1   5   10   15
Ile Ile His Gln Arg Thr His
            20

<210> 116
<211> 69
<212> DNA
<213> Homo sapiens

<220>
<221> CDS
<222> (1)...(69)

<400> 116
tat gaa tgt gaa aaa tgt ggc aaa gct ttt aac cag tcc tca aat ctt 48
Tyr Glu Cys Glu Lys Cys Gly Lys Ala Phe Asn Gln Ser Ser Asn Leu
 1   5   10   15

act aga cat aag aaa agt cat 69
Thr Arg His Lys Lys Ser His
20

<210> 117
<211> 23
<212> PRT
<213> Homo sapiens

<400> 117
Tyr Glu Cys Glu Lys Cys Gly Lys Ala Phe Asn Gln Ser Ser Asn Leu
1 5 10 15
Thr Arg His Lys Lys Ser His
20

<210> 118
<211> 69
<212> DNA
<213> Homo sapiens

<220>
<221> CDS
<222> (1)...(69)

<400> 118
tat gag tgc aat gaa tgt ggg aag ttt ttt agc cag agc tcc agc ctc 48
Tyr Glu Cys Asn Glu Cys Gly Lys Phe Phe Ser Gln Ser Ser Ser Leu
1 5 10 15

att aga cat agg aga agt cac 69
Ile Arg His Arg Arg Ser His
20

<210> 119
<211> 23
<212> PRT
<213> Homo sapiens

<400> 119
Tyr Glu Cys Asn Glu Cys Gly Lys Phe Phe Ser Gln Ser Ser Ser Leu
1 5 10 15
Ile Arg His Arg Arg Ser His
20

<210> 120
<211> 69
<212> DNA
<213> Homo sapiens

<220>
<221> CDS
<222> (1)...(69)

<400> 120

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tat gag tgt cac gat tgc gga aag tcc ttt agg cag agc acc cac ctc        48
Tyr Glu Cys His Asp Cys Gly Lys Ser Phe Arg Gln Ser Thr His Leu
 1               5                  10                  15

act cag cac cgg agg atc cac                                            69
Thr Gln His Arg Arg Ile His
            20


<210> 121
<211> 23
<212> PRT
<213> Homo sapiens

<400> 121
Tyr Glu Cys His Asp Cys Gly Lys Ser Phe Arg Gln Ser Thr His Leu
 1               5                  10                  15
Thr Gln His Arg Arg Ile His
            20


<210> 122
<211> 69
<212> DNA
<213> Homo sapiens

<220>
<221> CDS
<222> (1)...(69)

<400> 122
tat gag tgt cac gat tgc gga aag tcc ttt agg cag agc acc cac ctc        48
Tyr Glu Cys His Asp Cys Gly Lys Ser Phe Arg Gln Ser Thr His Leu
 1               5                  10                  15

act cgg cac cgg agg atc cac                                            69
Thr Arg His Arg Arg Ile His
            20


<210> 123
<211> 23
<212> PRT
<213> Homo sapiens

<400> 123
Tyr Glu Cys His Asp Cys Gly Lys Ser Phe Arg Gln Ser Thr His Leu
 1               5                  10                  15
Thr Arg His Arg Arg Ile His
            20

<210> 124
<211> 69
<212> DNA
<213> Homo sapiens

<220>
<221> CDS
```

<222> (1)...(69)

<400> 124
cac aag tgc ctt gaa tgt ggg aaa tgc ttc agt cag aac acc cat ctg 48
His Lys Cys Leu Glu Cys Gly Lys Cys Phe Ser Gln Asn Thr His Leu
1 5 10 15

act cgc cac caa cgc acc cac 69
Thr Arg His Gln Arg Thr His
20

<210> 125
<211> 23
<212> PRT
<213> Homo sapiens

<400> 125
His Lys Cys Leu Glu Cys Gly Lys Cys Phe Ser Gln Asn Thr His Leu
1 5 10 15
Thr Arg His Gln Arg Thr His
20

<210> 126
<211> 75
<212> DNA
<213> Homo sapiens

<220>
<221> CDS
<222> (1)...(75)

<400> 126
tac cac tgt gac tgg gac ggc tgt gga tgg aaa ttc gcc cgc tca gat 48
Tyr His Cys Asp Trp Asp Gly Cys Gly Trp Lys Phe Ala Arg Ser Asp
1 5 10 15

gaa ctg acc agg cac tac cgt aaa cac 75
Glu Leu Thr Arg His Tyr Arg Lys His
20 25

<210> 127
<211> 25
<212> PRT
<213> Homo sapiens

<400> 127
Tyr His Cys Asp Trp Asp Gly Cys Gly Trp Lys Phe Ala Arg Ser Asp
1 5 10 15
Glu Leu Thr Arg His Tyr Arg Lys His
20 25

<210> 128
<211> 75
<212> DNA
<213> Homo sapiens

<220>
<221> CDS
<222> (1)...(75)

<400> 128
tac aga tgc tca tgg gaa ggg tgt gag tgg cgt ttt gca aga agt gat 48
Tyr Arg Cys Ser Trp Glu Gly Cys Glu Trp Arg Phe Ala Arg Ser Asp
1 5 10 15

gag tta acc agg cac ttc cga aag cac 75
Glu Leu Thr Arg His Phe Arg Lys His
20 25

<210> 129
<211> 25
<212> PRT
<213> Homo sapiens

<400> 129
Tyr Arg Cys Ser Trp Glu Gly Cys Glu Trp Arg Phe Ala Arg Ser Asp
1 5 10 15
Glu Leu Thr Arg His Phe Arg Lys His
20 25

<210> 130
<211> 75
<212> DNA
<213> Homo sapiens

<220>
<221> CDS
<222> (1)...(75)

<400> 130
ttc agc tgt agc tgg aaa ggt tgt gaa agg agg ttt gcc cgt tct gat 48
Phe Ser Cys Ser Trp Lys Gly Cys Glu Arg Arg Phe Ala Arg Ser Asp
1 5 10 15
gaa ctg tcc aga cac agg cga acc cac 75
Glu Leu Ser Arg His Arg Arg Thr His
20 25

<210> 131
<211> 25
<212> PRT
<213> Homo sapiens

<400> 131
Phe Ser Cys Ser Trp Lys Gly Cys Glu Arg Arg Phe Ala Arg Ser Asp
1 5 10 15
Glu Leu Ser Arg His Arg Arg Thr His
20 25

<210> 132

<211> 75
<212> DNA
<213> Homo sapiens

<220>
<221> CDS
<222> (1)...(75)

<400> 132
ttc gcc tgc agc tgg cag gac tgc aac aag aag ttc gcg cgc tcc gac 48
Phe Ala Cys Ser Trp Gln Asp Cys Asn Lys Lys Phe Ala Arg Ser Asp
 1 5 10 15

gag ctg gcg cgg cac tac cgc aca cac 75
Glu Leu Ala Arg His Tyr Arg Thr His
 20 25

<210> 133
<211> 25
<212> PRT
<213> Homo sapiens

<400> 133
Phe Ala Cys Ser Trp Gln Asp Cys Asn Lys Lys Phe Ala Arg Ser Asp
 1 5 10 15
Glu Leu Ala Arg His Tyr Arg Thr His
 20 25

<210> 134
<211> 75
<212> DNA
<213> Homo sapiens

<220>
<221> CDS
<222> (1)...(75)

<400> 134
tac cac tgc aac tgg gac ggc tgc ggc tgg aag ttt gcg cgc tca gac 48
Tyr His Cys Asn Trp Asp Gly Cys Gly Trp Lys Phe Ala Arg Ser Asp
 1 5 10 15

gag ctc acg cgc cac tac cga aag cac 75
Glu Leu Thr Arg His Tyr Arg Lys His
 20 25

<210> 135
<211> 25
<212> PRT
<213> Homo sapiens

<400> 135
Tyr His Cys Asn Trp Asp Gly Cys Gly Trp Lys Phe Ala Arg Ser Asp
 1 5 10 15
Glu Leu Thr Arg His Tyr Arg Lys His

20 25

<210> 136
<211> 72
<212> DNA
<213> Homo sapiens

<220>
<221> CDS
<222> (1)...(72)

<400> 136
ttc ctc tgt cag tat tgt gca cag aga ttt ggg cga aag gat cac ctg 48
Phe Leu Cys Gln Tyr Cys Ala Gln Arg Phe Gly Arg Lys Asp His Leu
1 5 10 15

act cga cat atg aag aag agt cac 72
Thr Arg His Met Lys Lys Ser His
20

<210> 137
<211> 24
<212> PRT
<213> Homo sapiens

<400> 137
Phe Leu Cys Gln Tyr Cys Ala Gln Arg Phe Gly Arg Lys Asp His Leu
1 5 10 15
Thr Arg His Met Lys Lys Ser His
20

<210> 138
<211> 78
<212> DNA
<213> Artificial Sequence

<220>
<223> primer for PCR

<400> 138
tgtcgaatct gcatgcgtaa cttcagtcgt agtgaccacc ttaccaccca catccggacc 60
cacactggcc agaaaccc 78

<210> 139
<211> 81
<212> DNA
<213> Artificial Sequence

<220>
<223> primer for PCR

<400> 139
ggtggcggcc gttacttact tagagctcga cgtcttactt acttagcggc cgcactagta 60
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<210> 140

<211> 69
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<220>
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<222> (1)...(69)

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Phe Gln Cys Lys Thr Cys Gln Arg Lys Phe Ser Arg Ser Asp His Leu
 1 5 10 15

aag acc cac acc agg act cat 69
Lys Thr His Thr Arg Thr His
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<210> 141
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<400> 141
Phe Gln Cys Lys Thr Cys Gln Arg Lys Phe Ser Arg Ser Asp His Leu
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Lys Thr His Thr Arg Thr His
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<220>
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Phe Ala Cys Glu Val Cys Gly Val Arg Phe Thr Arg Asn Asp Lys Leu
 1 5 10 15

aag atc cac atg cgg aag cac 69
Lys Ile His Met Arg Lys His
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<210> 143
<211> 23
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<400> 143
Phe Ala Cys Glu Val Cys Gly Val Arg Phe Thr Arg Asn Asp Lys Leu
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1 5 10 15

aag ctc aac aga cac aag aaa agg cac 75
Lys Leu Asn Arg His Lys Lys Arg His
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<400> 145
Tyr Val Cys Asp Val Glu Gly Cys Thr Trp Lys Phe Ala Arg Ser Asp
1 5 10 15
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Tyr Ile Cys Arg Lys Cys Gly Arg Gly Phe Ser Arg Lys Ser Asn Leu
1 5 10 15

atc aga cat cag agg aca cac 69
Ile Arg His Gln Arg Thr His
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<210> 147
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Tyr Ile Cys Arg Lys Cys Gly Arg Gly Phe Ser Arg Lys Ser Asn Leu
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Ile Arg His Gln Arg Thr His
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Tyr Leu Cys Ser Glu Cys Asp Lys Cys Phe Ser Arg Ser Thr Asn Leu
1 5 10 15

ata agg cat cga aga act cac 69
Ile Arg His Arg Arg Thr His
20

<210> 149
<211> 23
<212> PRT
<213> Homo sapiens

<400> 149
Tyr Leu Cys Ser Glu Cys Asp Lys Cys Phe Ser Arg Ser Thr Asn Leu
1 5 10 15
Ile Arg His Arg Arg Thr His
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<221> VARIANT
<222> 19
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<400> 150
Xaa Xaa Cys Xaa Xaa Xaa Xaa Xaa Cys Xaa Xaa Xaa Xaa Xaa Gln Xaa

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Ala His Xaa Xaa Arg His Xaa Xaa Xaa Xaa Xaa His
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<400> 151
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<400> 152
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Ser His Xaa Xaa Thr His Xaa Xaa Xaa Xaa Xaa His
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<210> 153
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<400> 153
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 1   5   10   15
Ser His Xaa Xaa Val His Xaa Xaa Xaa Xaa Xaa His
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<400> 154
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Ser Asn Xaa Xaa Ile His Xaa Xaa Xaa Xaa Xaa His
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<400> 155
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 1   5   10   15
Ser Asn Xaa Xaa Arg His Xaa Xaa Xaa Xaa Xaa His
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<400> 156
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Thr His Xaa Xaa Gln His Xaa Xaa Xaa Xaa Xaa His
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<400> 157
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 1   5   10   15
Xaa Xaa Arg His Xaa Xaa Xaa Xaa Xaa His
            20   25

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Ser Asn Xaa Xaa Arg His Xaa Xaa Xaa Xaa Xaa His
            20   25

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            20   25

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20 25

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<400> 162
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Asp Glu Xaa Xaa Arg His Xaa Xaa Xaa Xaa Xaa His
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<400> 163
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Asp His Xaa Xaa Arg His Xaa Xaa Xaa Xaa Xaa His
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<400> 164
Xaa Xaa Cys Xaa Xaa Xaa Xaa Xaa Cys Xaa Xaa Xaa Xaa Xaa Arg Xaa
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Asp His Xaa Xaa Thr His Xaa Xaa Xaa Xaa Xaa His
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<210> 165
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Ser His Xaa Xaa Arg His Xaa Xaa Xaa Xaa Xaa His
            20                  25
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